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Laser Sensors



- ◎ The combination of laser source and CMOS can effectively resist to environmental influences
- ◎ Automatic light compensation technology, which can automatically adjust the threshold according to the change of the received light
- ◎ Response speed up to 0.25ms, which helps to detect fast moving objects
- ◎ Up to 6 teaching functions for option, which can easily solve various installation and debugging problems
- ◎ IP67 protection design prevents dust and moisture interference



NEW!
HOT

Square Type (ELB/ELC/ELE Series)

- Response time high up to 0.25ms, suitable for detecting fast moving objects
- Light spot diameter for thru-beam products is just 30mm (at 30m)
- Protection degree IP67

P.D-03



Not affected by background color

BGS Type (ELS/ELT Series)

- Free from the interference of objects and background colors, with stable detection
- Laser source, suitable for long distance detection of small objects
- Built-in rotational knobs with multiple turns to realize slight sensitivity adjustment

P.D-06



Transparent Objects Detection (ESQ Series)

- Automatically adjust threshold value according to the amount of lights
- Laser sources, suitable for detections of different glass or PET bottles
- Coaxial light source makes calibration more easy.

P.D-11

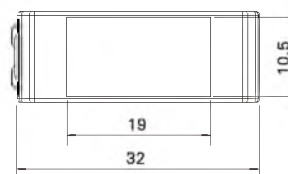
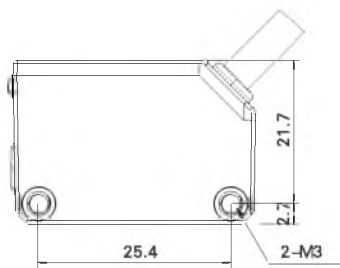
Appearance	Type	Sensing Distance		Model No.		Pages
				NPN Normally open & Normally closed	PNP Normally open & Normally closed	
 (Square)	Diffuse reflection	2~35cm		ELB-350N	ELB-350P	D-03
	Thru-beam	3000cm		ELC-TM30N	ELC-TM30P	D-05
	Retro-reflection	1000cm		ELC-RM10N	ELC-RM10P	
	Diffuse reflection	40cm		ELC-D40N	ELC-D40P	
	Diffuse reflection	1~15cm		ELE-B15N	ELE-B15P	D-06
	Diffuse reflection	40cm		ELE-D40N	ELE-D40P	
	Retro-reflection	500cm		ELE-RM05N	ELE-RM05P	
	Thru-beam	3000cm		ELE-TM30N	ELE-TM30P	
 (Background suppression)	Diffuse reflection	10~70cm	Long distance type	ELS-ZL70N	ELS-ZL70P	D-08
		1~30cm	Long distance type	ELS-ZL30N HOT	ELS-ZL30P	
		0.5~10cm	Short distance type	ELS-ZL10N	ELS-ZL10P	
		0~450cm	Long distance type	ELT-S450N	ELT-S450P	D-10
 (Transparent objects detection)	Retro-reflection (Coaxial beam)	150cm	High resolution type	ESQ-150N HOT	ESQ-150P	D-11
		400cm	Long distance type	ESQ-400N	ESQ-400P	



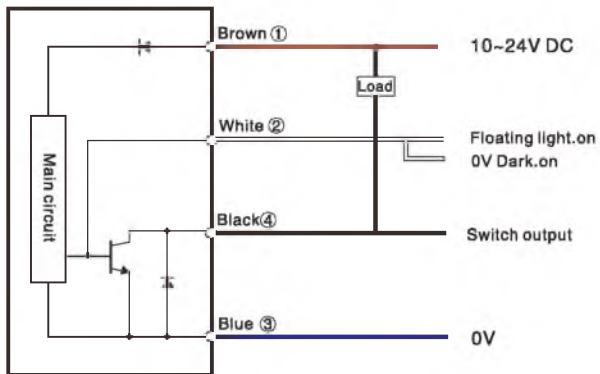
Appearance	
Sensing type	Diffuse reflection – background suppression
Setting distance	50–350mm
Sensing distance	20–350mm
Spot size	φ 1.5mm/350m
Minimum detectable object	φ 0.5mm
Switch type	L.on/D.on Switchable
Indicator	Output indicator: orange; laser indicator: green
Response time	≤0.3ms
Sensitivity adjustment	4–turn adjuster
Light source	Laser (650nm)
Laser class	Class1
Hysteresis range	Black and white equidistant within 250mm, the hysteresis range of 250–350mm is 5%
Light interference	Daylight: ≤5000Lux; ≤20000Lux, LED: ≤2000Lux
Operating Voltage	10~24V DC
Output mode	NPN or PNP open collector
Current consumption	≤20mA
Load current	≤100mA
Residual voltage	<1V
Circuit protection	Reverse connection protection, output overcurrent protection, interference light protection
Protection level	IP 66
Housing shell material	Shell: containing glass fiber ABS, lens: PMMA
Ambient temperature	–10℃~+70℃, No freezing
Ambient humidity	35%~85% RH ,No condensation
Vibration resistant	10~55Hz, Amplitude 1.5mm, 2 hours each in X, Y and Z directions
Impact resistant	50G(500m/s2)
Insulation resistance	Between all power connection terminals and housing, 20MΩ or more (based on DC250V)
Accessories	Brackets, Screws
Model	NPN PNP
	ELB-350N ELB-350P

Dimensions

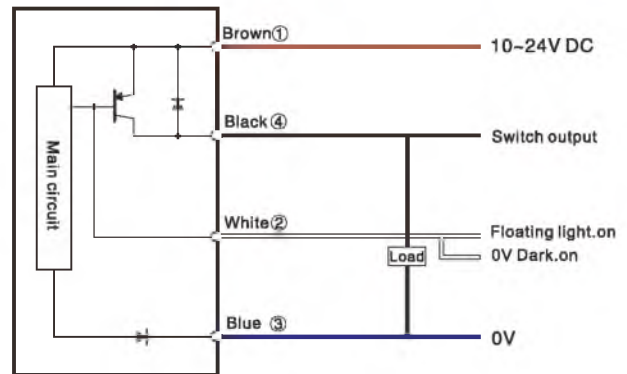
unit: mm



NPN Output



PNP Output



Square

ELC Series

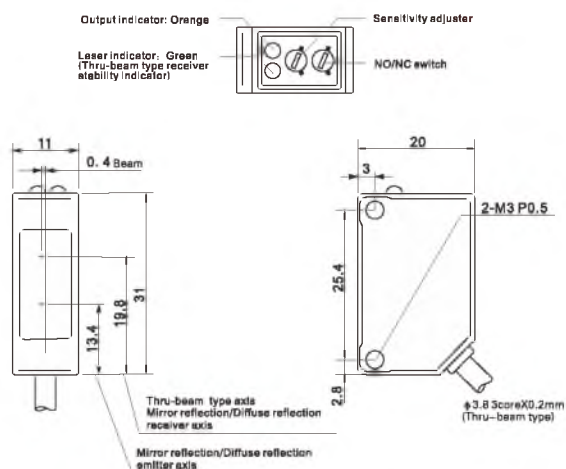


Appearance

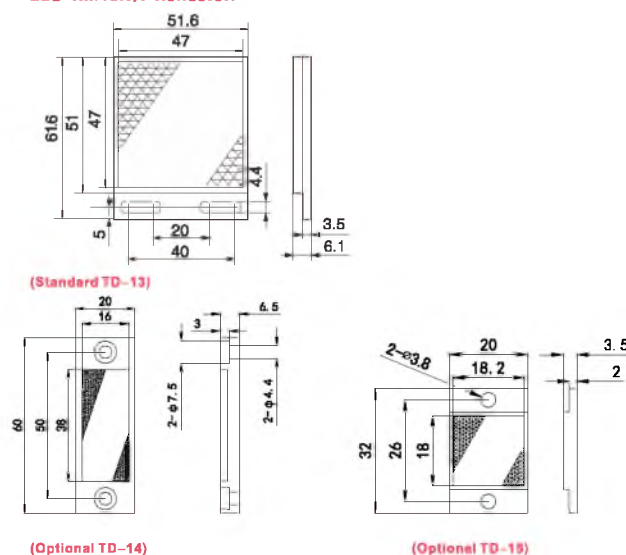
Sensing type	Thru-beam	Retro-reflection	Diffuse reflection
Sensing distance	30m	10m	40cm
Spot size	φ 30mm /30m	φ 10mm/ 10m	φ 2mm/40cm
Switch type	Selectable L.on/D.on		
Indicator	Laser indicator: Green; Output indicator: Yellow		
Response time	0.25 ms		
Sensitivity adjustment	Single-turn potentiometer		
Light source	Laser(650nm)		
Laser class	Class1		Class2
Operating voltage	12~24V DC ± 10%		
Current consumption	≤30mA		≤20mA
Ambient temperature	-10℃~+50℃, No freezing		
Ambient humidity	35%~85%RH, No condensation		
Anti-vibration	10~55Hz Amplitude1.5mm		
Impact resistance	50G(500m/s ²)		
Degree of protection	IP67		
Accessories	Bracket, screw	Bracket, screw, reflector	Bracket, screw
Model No.	NPN	ELC-TM30N	ELC-D40N
	PNP	ELC-TM30P	ELC-D40P

Dimensions

Unit: mm

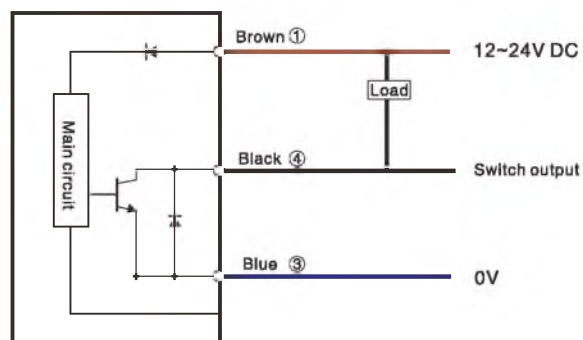


ELC-RM10N/P Reflector:

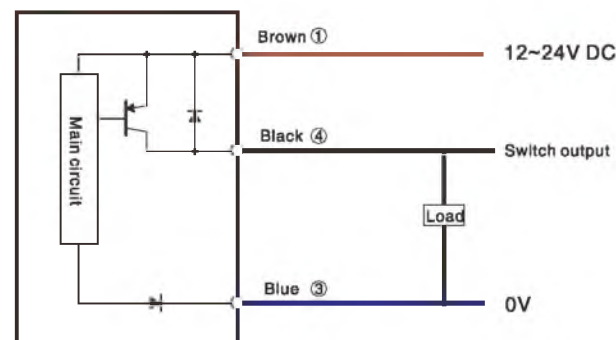


Circuit diagram

NPN Output



PNP Output





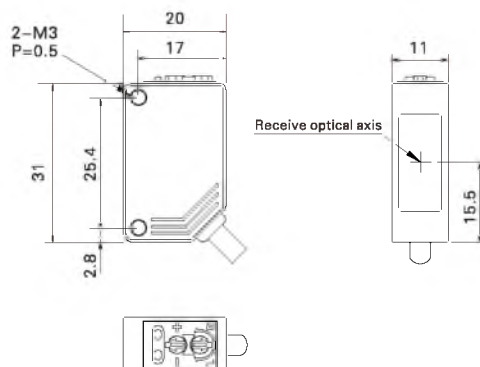
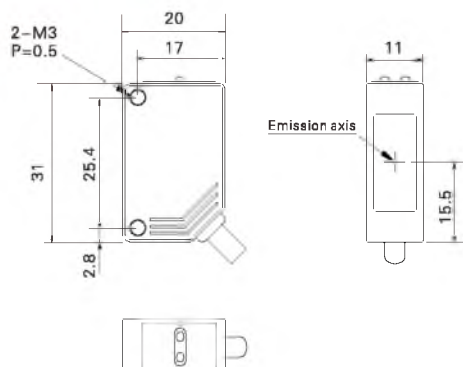
Economical Type

Appearance					
Sensing distance	Diffuse reflection-BGS	Diffuse reflection	Retro-reflection	Thru-beam	
Detection distance	1-15cm	40cm	5m	30m	
Setting distance	2-15cm	-	-	-	
Spot diameter	± Ø1.5mm/15cm	± Ø1.5mm/40cm	± Ø20mm/5m	± Ø60mm/30m	
Hysteresis	≤5% SN	≤20% SN			
Indicator	Working indicator light: green; Action indicator: Red				
Sensitivity adjustment	6 circle potentiometer	Single coil potentiometer			
Output mode	NPN or PNP open collector				
Switch mode	L.on (light-in action)/D.on (light-shielding action) can be switched				
Response time	≦2ms				
light source	Laser 650nm (modulation) Class 2				
Working voltage	10-30V DC				
Voltage	<1.5V				
Current consumption	≦20mA				
Load current	≦100mA				
Ambient illuminance	Incandescent lamp: 3000 lux or less / Sunlight: 5000 lux or less				
Ambient temperature	-25℃~+55℃, no freezing				
Ambient humidity	35%~85% RH, no condensation				
Withstand voltage	±1000V 50/60Hz 60s				
Static electricity	± 8000V(air discharge)				
Group pulse	± 2000V (5kHz/50kHz)				
Anti-vibration	10-50Hz, 0.5mm amplitude, 2 hours each in X, Y, Z directions				
Circuit protection	Power reverse polarity protection, output reverse polarity protection, surge protection, short circuit protection Protection Power reverse polarity protection, surge protection, short circuit protection			Power reverse polarity protection, surge protection, short circuit protection	
Degree of protection	IP65				
Material	PBT + glass fiber (body), PMMA (lens)				
Connection	2M/3 core cable				
Accessories	Screwdriver				
Model No.	NPN	ELE-B15N	ELE-D40N	ELE-RM05N	ELE-TM30N
	PNP	ELE-B15P	ELE-D40P	ELE-RM05P	ELE-TM30P

Dimensions

Unit: mm

ELE-TM30N/P

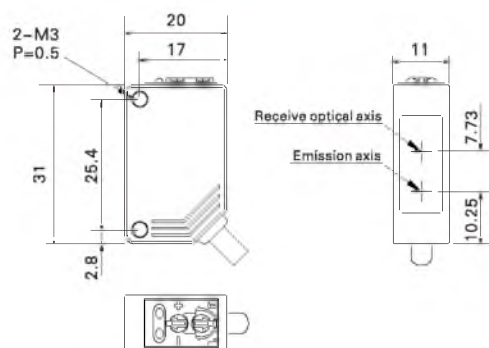


Square

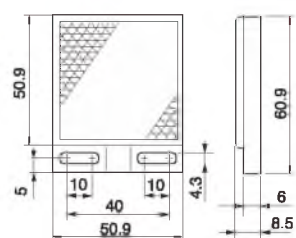
Dimensions

Unit: mm

ELE-B15N/P, ELE-D40N/P, ELE-RM05N/P



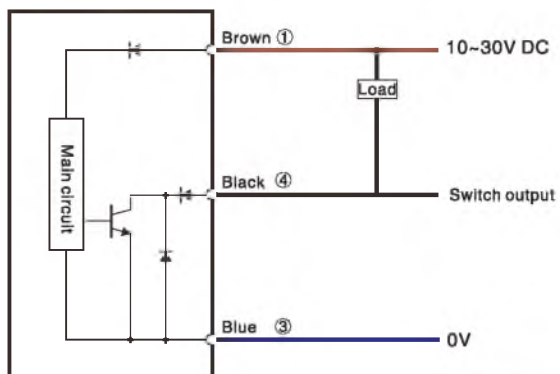
ELE-RM05 With reflector



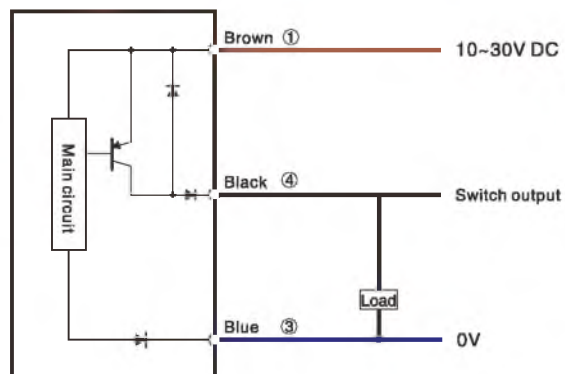
(Optional TD-11)

Circuit diagram

NPN Output



PNP Output





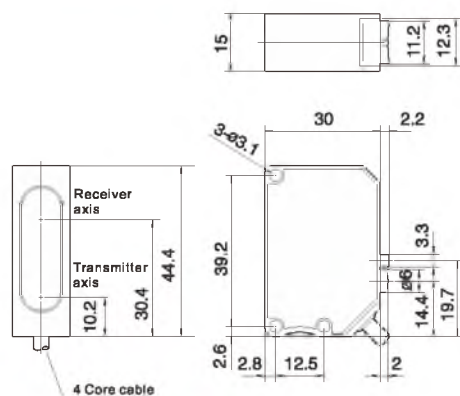
Appearance

Type	Long distance type		Short distance type	
Sensing type	Diffuse reflection			
Setting distance	50~300mm		20~100mm	
Sensing distance	100~700mm	10~300mm	5~100mm	
Spot size	φ 6mm/200mm	φ 1.5mm/300mm	φ 1mm/100mm	
Switch type	Selectable L.on/D.on			
Indicator	Output indicator: Orange; Laser indicator: Green			
Response time	0.7 ms	0.3 ms		
Sensitivity adjustment	Four-turn potentiometer			
Light source	Laser(650nm)			
Laser class	Class2	Class1		
Operating voltage	10~30V DC± 10%			
Current consumption	35mA	≤30mA		
Ambient temperature	-10℃~+50℃, No freezing			
Ambient humidity	35%~85%RH, No condensation			
Impact resistance	50G(500m/s²)			
Degree of protection	IP67			
Material	Housing: ABS+ fiber glass; Lens: PMMA			
Accessories	None	Bracket,screws		
Model No.	NPN	ELS-ZL70N	ELS-ZL30N 	ELS-ZL10N
	PNP	ELS-ZL70P	ELS-ZL30P	ELS-ZL10P

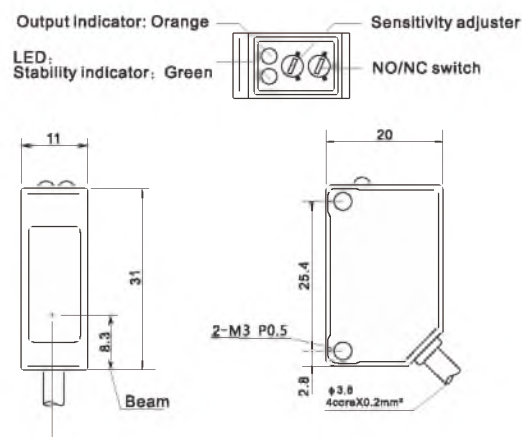
Dimensions

Unit: mm

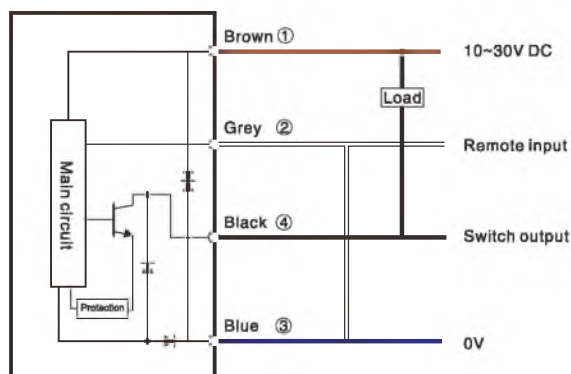
ELS-ZL70N(P)



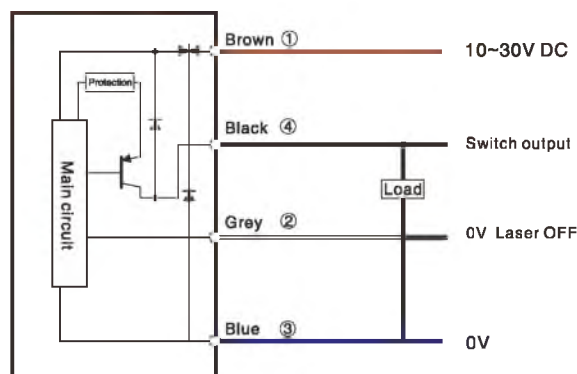
ELS-ZL30N(P)/ELS-ZL10N(P)



Circuit diagram

ELS-ZL30
NPN Output

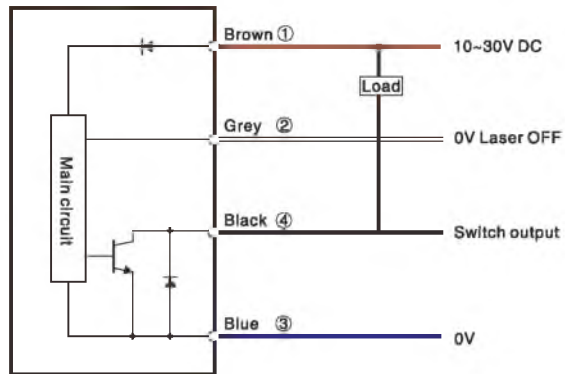
PNP Output



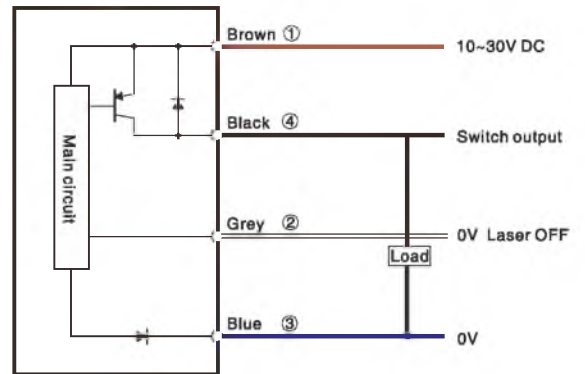
Circuit diagram

ELS-ZL70/ELS-ZL10

NPN Output



PNP Output





TOF Principle

Appearance

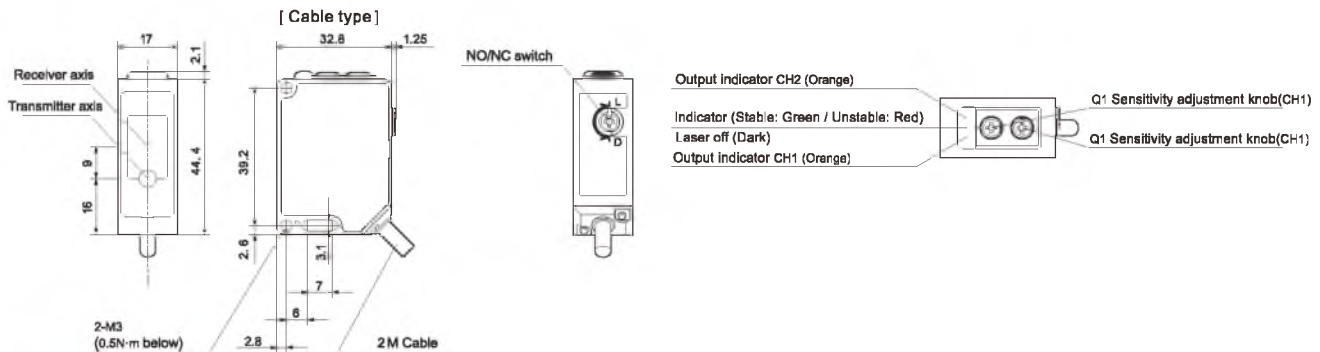
Type	Long distance
Sensing type	Diffuse reflection
Sensing distance	0~4.5m
Spot size	About $\phi 17\text{mm}$ (4.5m away)
Switch type	Selectable L.on/D.on
Indicator	Output indicator: Orange; Laser indicator: Green
Response time	$\leq 0.5\text{ms}$
Sensitivity adjustment	Four-turn potentiometer
Light source	Laser(650nm)
Laser class	Class1
Operating voltage	10~30V DC $\pm 10\%$
Current consumption	$\leq 85\text{mA}$
Ambient temperature	$-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$, No freezing
Ambient humidity	35%~85%RH, No condensation
Impact resistance	50G(500m/s ²)
Degree of protection	IP67
Material	Housing: ABS+ fiber glass; Lens PMM
Model No.	NPN
	PNP

ELT-S450N

ELT-S450P

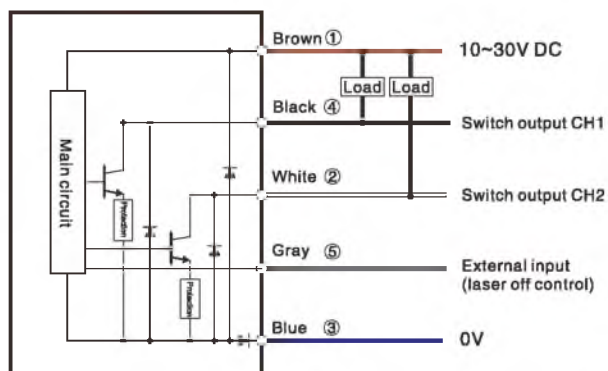
Dimensions

Unit: mm

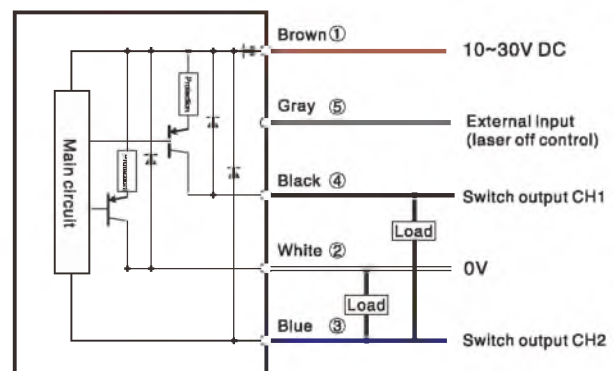


Circuit diagram

NPN Output

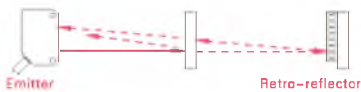


PNP Output



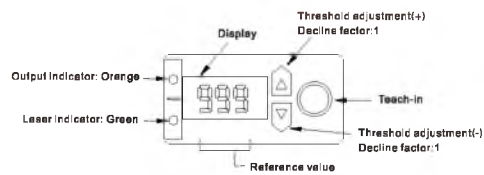
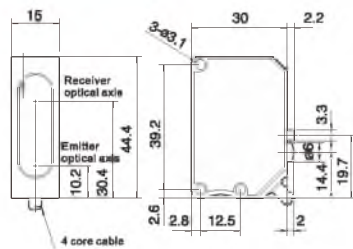
Transparent Objects Detection

ESQ Series

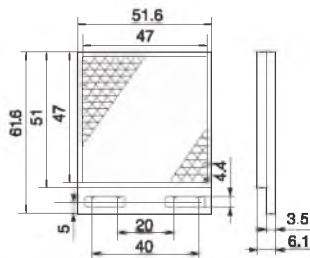
Appearance			
Type	High resolution type	Long distance type	
Sensing type	Retro-reflection (Coaxial beam)		
Sensing distance	1.5m	4m	
Spot size	φ 15mm/1.5m	φ 20mm/3.5m	
Output type	NPN/PNP open-collector output, ≤100mA/30V DC		
Switch type	Selectable L.on/D.on		
Indicator	Output indicator: Orange; Laser indicator: Green		
Digital display	7 segments, 3-digit Red LED display		
Response time	0.7 ms		
Time delay	0~999ms Value added unit:1ms;1~10ms Value added unit :1ms		
Sensitivity adjustment	Teach-in button		
Light source	Laser(650nm), Max 1mW		
Laser class	Class2		
Operating voltage	10~30V DC ± 10 %		
Current consumption	35mA		
Ambient brightness	Sunlight≤10000Lux, Incandescent lamp≤3000Lux		
Ambient temperature	-10~+50℃, No freezing		
Ambient humidity	35~85%RH, No condensation		
Insulation resistance	≥20MΩ(500V DC)		
Impact resistance	50G(500m/s ²), XYZ three directions		
Certificate	IEC, EC		
Degree of protection	IP67		
Material	Housing: Antibacterial ABS; lens: PMMA		
Accessories	Bracket, screw, reflector		
Model No.	NPN	ESQ-150N HOT	ESQ-400N
	PNP	ESQ-150P	ESQ-400P

Dimensions

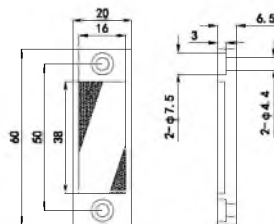
Unit: mm



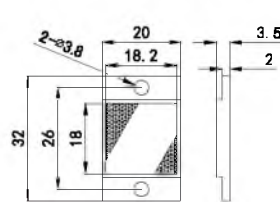
Reflector:



(Standard TD-13)



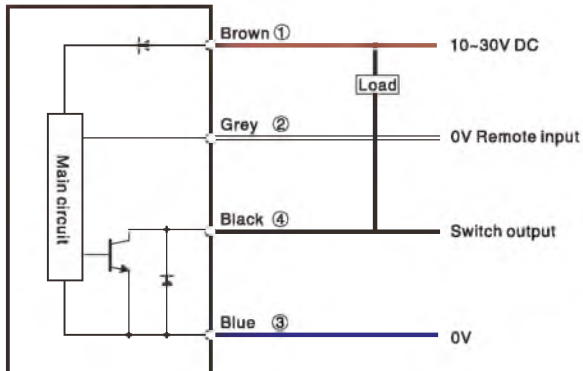
(Optional TD-14)



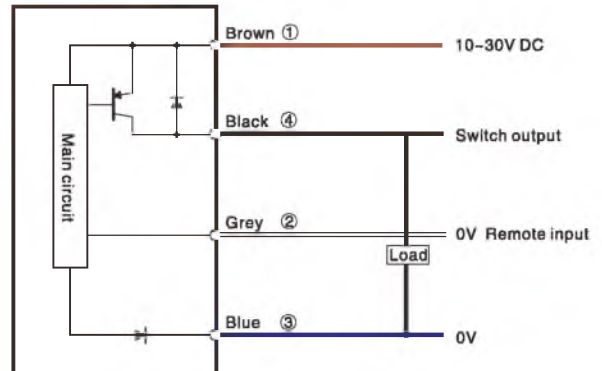
(Optional TD-15)

Circuit diagram

NPN Output



PNP Output



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